

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Currently Amended) A wireless frequency hopping digital communications system, where communications in successive data frames occur on different wireless carrier frequencies, comprising:

a transmitter for transmitting:

a first block of digital data during a primary data transmission period of a data frame where the first block of digital data has not been previously transmitted; and

a second block of digital data during a redundant data transmission period of the data frame, where the second block of digital data was previously transmitted at a different carrier frequency during a primary data transmission period of a prior data frame; and

a receiver for receiving:

a third block of digital data during a primary data receive period of the data frame, where the third block of digital data has not previously been received; and

a fourth block of digital data during a redundant data receive period of the data frame, where the fourth block of digital data was previously received at a different carrier frequency during the primary data receive period of the prior data frame,

wherein the transmitter transmits the second block of data only if the battery power level of a battery-powered wireless communications device utilizing the data frame exceeds a predetermined level, and

wherein the receiver receives the fourth block of data even if the battery power level of a battery-powered wireless communications device utilizing the data frame does not exceed the predetermined level.

2. (Previously Presented) The system of claim 1, wherein the transmitter transmits error detection information associated with the contents of the primary data transmit period and the redundant data transmit period during a transmit preamble period of the data frame;

the receiver receives error detection information associated with the contents of the primary data receive period and the redundant data receive period during a receive preamble period of the data frame.

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Previously Presented) The system of claim 1, in which the transmitter transmits the second block of data only if the quality of communications within the wireless frequency hopping communications system fails to satisfy a predetermined quality threshold.

7. (Previously Presented) The system of claim 6, in which the predetermined quality threshold is a maximum bit error rate.

8. (Previously Presented) The system of claim 1, in which the receiver receives the fourth block of data only if the quality of communications within the wireless frequency hopping communications system fails to satisfy a predetermined quality threshold.

9. (Previously Presented) The system of claim 8, in which the predetermined quality threshold is a maximum bit error rate.

10. (Currently Amended) A wireless frequency hopping digital communications system, where communications in successive data frames occur on different wireless carrier frequencies, comprising a portable device that comprises:

a receiver to receive a first block of digital data during a primary data receive period, where the first block of digital data has not been previously received; and to receive a second block of digital data during a redundant data receive period, where the second block of digital data was previously received at a different carrier frequency during the primary data transmission period of the prior data frame; and

a transmitter to transmit a third block of digital data during a primary data transmit period, where the third block of digital data has not been previously transmitted; and to transmit, only if a battery power of the portable device exceeds a predetermined threshold, a fourth block

of digital data during a redundant data transmit period, where the second block of digital data was previously transmitted.

11. (Currently Amended) A method for communicating data between a first device and a second device via a wireless frequency hopping digital communications link, which method is comprised of the steps of:

transmitting a first block of data from the first device to the second device during a first data frame period, where the first block of data has not been previously transmitted;

transmitting a second block of data from the first device to the second device during the first data frame period, where the second block of data was also transmitted by the first device during the data frame period immediately preceding the first data frame period;

transmitting a third block of data from the second device to the first device during the first data frame period, where the third block of data has not been previously transmitted; and

transmitting a fourth block of data from the second device to the first device during the first data frame period, where the fourth block of data was also transmitted by the second device during the data frame period immediately preceding the first data frame period, only if a battery level of the second device exceeds a predetermined threshold,

wherein, even if the battery level of the second device does not exceed the predetermined threshold, the second device is configured to receive the second block of data in the first data frame period that was also transmitted by the first device during the data frame period immediately preceding the first data frame period.

12. (Canceled)

13. (Currently Amended) A method for communication data between a first device and a second device via a wireless frequency hopping digital communications link where the communications are divided into a plurality of data frames, which method is comprised of the steps of:

transmitting at least one data block within each frame from the first device to the second device, where each data block is transmitted one time;

determining that the quality of the communications link fails to satisfy a predetermined criterion;

transmitting a first data block and a second data block from the first device to the second device within each frame, the first data block containing data that has not been previously transmitted from the first device to the second device, the second data block containing data that was also transmitted from the first device to the second device during the preceding frame;

transmitting a third data block from the second device to the first device within each frame, the third data block containing data that has not been previously transmitted from the second device to the first device; and

transmitting, only if a battery power of the second device exceeds a predetermined threshold, a fourth data block from the second device to the first device within each frame, containing data that was also transmitted from the first device to the second device during the preceding frame,

wherein, even if the battery level of the second device does not exceed the predetermined threshold, the second device is configured to receive the first data block and the second block within each frame.

14. (Original) The method of claim 13, in which the step of determining that the quality of the communications link fails to satisfy a predetermined criterion is further comprised of the substeps of:

measuring a bit error rate of data transmitted on the communications link;

determining that the bit error rate exceeds a predetermined maximum acceptable level.

15. (Currently Amended) A method for communication data between a first device and a second device via a wireless frequency hopping digital communications link where the communications are divided into a plurality of data frames and the first device is powered by a battery power source, which method is comprised of the steps of:

transmitting a first data block and a second data block from the first device to the second device within each frame, the first data block transmitted in a primary data period and containing data that has not been previously transmitted from the first device to the second device, the second data block transmitted in a redundant data period and containing data that was also transmitted from the first device to the second device during the preceding frame;

receiving a third data block from the second device at the first device within each frame, the third data block containing data that has not been previously received from the second device by the first device;

determining that the level of power remaining in the battery power source is below a predetermined threshold level; and

transmitting at least one data block within each frame from the first device to the second device, where each data block is transmitted only one time if the battery power source of the first device is below the predetermined threshold; and

receiving, even if the battery power source of the first device is below the predetermined threshold, a fourth data block from the second device by the first device within each frame, the fourth data block containing data that was also transmitted from the second device to the first device during the preceding frame .

16. (Currently Amended) A method for receiving and sending data via a wireless frequency hopping digital communications link in which one data frame is transmitted during each frequency hop, the data frame including a primary period for receiving an initial copy of a data block and a secondary period for receiving a redundant copy of the data block, the method comprising the steps of:

receiving at a first device a first data frame containing a first data block and an error detection field associated with the contents of the first data block during a first frequency hop;

using the contents of the error detection field to determine that the first data block was received with one or more errors;

receiving, even if a battery power source of the first device is below a predetermined threshold, a second data frame containing a second data block and an error detection field associated with the contents of the second data block during a second frequency hop immediately

following the first frequency hop, where the contents of the second data block are identical to the contents of the first data block;

using the contents of the error detection field to determine whether the second data block was received with one or more errors;

storing null data into the buffer if the second data block was received with one or more errors;

storing the contents of the second data block into a buffer if the second data block was received without error;

transmitting a third block of data from the first device to a second device during the first data frame, where the third block of data has not been previously transmitted; and

transmitting, only if the battery power source is above the predetermined threshold, a fourth block of data from the first device to the second device during the second data frame period, where the fourth block of data was also previously transmitted by the first device.

17. (Currently Amended) A method for receiving data by a wireless device via a frequency hopping digital communications link, the communications link being comprised of a plurality of successive data frames, each data frame comprising a primary data period and a redundant data period, where the contents of the redundant data period are the same as the contents of the primary data period during the preceding frame, the method comprising the steps of:

receiving a first data frame, the first data frame also containing an error detection field associated with the contents of at least the first data period of the first data frame;

using the contents of the error detection field to determine that the contents of the first data period were received without any errors;

depowering a receiver circuit associated with the wireless device during receipt of at least the redundant data period during a second data frame immediately following the first data frame; and

maintaining power in the receiver circuit during receipt of the primary data period during a second data frame immediately following the first data frame,

wherein the wireless device is configured to:

transmit a first block of data from the wireless device to a second device during the first data frame, where the first block of data has not been previously transmitted;

transmit, only if a battery power of the wireless device exceeds a predetermined threshold, a second block of data from the wireless device to the second device during the first data frame period, where the second block of data was also transmitted by the wireless device during the data frame period immediately preceding the first data frame;

receive a third block of data from the second device during the first data frame, where the third block of data has not been previously transmitted; and

receive, even if the battery power of the wireless device is below the predetermined threshold, a fourth block of data from the second device during the first data frame, where the fourth block of data was previously transmitted by the second device, if the fourth block was previously received with errors.